

REMARKS

Claims 1-17 and 30 are pending in this application. By this Amendment, claims 1, 3 and 10-17 are amended. Claims 1 and 3 have been amended to distinguish the present application from Ocvirk and Oishi. Claims 10-17 have been amended to correct antecedence.

No new matter has been added by this Amendment. Support for the language added to claim 1 can be found throughout the specification, for example, in paragraph 132, Figures 4, 5, 8-10, and the description of these figures in the specification.

Entry of the amendments is proper under 37 CFR §1.116 since the amendments:

(a) place the application in condition for allowance (for the reasons discussed herein); (b) do not raise any new issue requiring further search and/or consideration (since the amendments amplify issues previously discussed throughout prosecution); (c) do not present any additional claims without canceling a corresponding number of finally rejected claims; and (d) place the application in better form for appeal, should an appeal be necessary. The amendments are necessary and were not earlier presented because they are made in response to arguments raised in the final rejection. Entry of the amendments is thus respectfully requested.

I. Allowable Subject Matter

Applicants note with appreciation that claims 2-4, 6, 7 and 17 are allowable.

II. Rejection Under 35 U.S.C. §102(b)

A. Ockvirk

Claims 1, 10, 11, 15, 16 and 30 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Patent No. 4,838,619 ("Ocvirk"). This rejection is respectfully traversed.

On page 5, in the "Response to Arguments" section, of the pending Office Action, the Patent Office alleges that Ocvirk teaches that in the anti-lock mode, the pressure of the working fluid in the brake cylinder corresponds to the operation of the brake operating

member as recited by the claims. By this Amendment, claim 1 has been amended to recite that the flow-rate changing device is operable during a normal braking operation to control the fluid pressure in the brake cylinder such that the fluid pressure in the brake cylinder changes with a change of operating amount of the brake operating member. It is clear that Ocvirk does not teach or suggest this feature as recited in claim 1.

Further, the Patent Office appears to allege that modulators 15, 16 are operable to change the first flow rate in the anti-lock braking-pressure control mode. See column 5, line 64 to column 6, line 5 of Ocvirk. Applicant respectfully disagrees with this allegation. The modulators 15, 16 (corresponding to control valves 54 and 58 in Fig. 1 of the present application) are controlled in the anti-lock braking pressure control mode, regardless of the operating amount of the brake operating member 3. In other words, the brake cylinder pressure does not change with a change of the operating amount of the brake pedal 3. Applicant submits that Ocvirk fails to teach or suggest that the flow-rate changing device is operable during a normal braking operation to control the fluid pressure in the brake cylinder such that the fluid pressure in the brake cylinder changes with a change of the operating amount of the brake operating member as recited in claim 1.

Furthermore, the Patent Office alleges that the feature of the "predetermined relationship" is inherent to the system of Ocvirk because the sizing of the system components can be predetermined and influence the relationship of the fluid flowing into the master cylinder to the fluid flowing out towards the brake cylinders. Applicant respectfully disagrees with this allegation. Ocvirk does not teach or suggest that the flow rate changing device changes the relationship according to an operating amount of the brake operating member as shown in Figs. 10 and 16 and recited in claim 1.

For the foregoing reasons, Applicant submits that claims 1, 10, 11, 15, 16 and 30 are patentable over Ocvirk. Reconsideration and withdrawal of the rejection are thus respectfully requested.

B. Oishi

Claims 1, 10, 11, 15, 16 and 30 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by JP 11-91530 (using U.S. Patent No. 6,095,622 as an English equivalent) ("Oishi"). This rejection is respectfully traversed.

In the "Response to Arguments" section of the Office Action, the Patent Office alleges that Oishi, like Ocvirk, teaches that in the anti-lock mode, the pressure of the working fluid in the brake cylinder corresponds to the operation of the brake operating member as broadly recited by the claims. Claim 1 has been amended to recite that the flow-rate changing device is operable during a normal braking operation to control the fluid pressure in the brake cylinder such that the fluid pressure in the brake cylinder changes with a change of operating amount of the brake operating member. It is clear that Oishi, like Ocvirk, does not teach or suggest this feature as recited in claim 1. Instead, Oishi teaches an anti-lock braking pressure control mode (see column 5, lines 27-30), traction control mode or vehicle-body stability maintaining control mode (see column 6, lines 9-11), and inter-vehicle distance control mode (see column 6, lines 50-52).

Also as explained above, the Patent Office alleges that the feature of the "predetermined relationship" is inherent to the system of Oishi, as with Ocvirk, because the sizing of the system components can be predetermined and influence the relationship of the fluid flowing into the master cylinder to the fluid flowing out towards the brake cylinders. Applicant similarly and respectfully disagrees with this allegation. As with Ocvirk, Oishi does not teach or suggest that the flow rate changing device changes the relationship

according to an operating amount of the brake operating member as shown in Figs. 10 and 16 and recited in claim 1.

Furthermore, Oishi does not teach or suggest that the flow-rate changing device is operable to change a relationship between a first rate of flow of the fluid from the master cylinder into the brake cylinder and a second rate of flow of the fluid into the master cylinder as recited in claim 1. Instead, Oishi teaches control modes wherein the pressurized fluid is delivered from the power operated hydraulic pressure source (24) into the brake cylinders 11-14, but is not delivered from the master cylinder 17. Thus, Applicant submits that Oishi does not teach or suggest all of the features recited in claim 1.

Oishi teaches that the pressurized fluid is delivered from the master cylinder 17 into the brake cylinder 11-14 via the passages 22, 23. However, Oishi does not teach or suggest that the combination of the flow-rate changing device is operable to change a relationship between a first rate of flow of the fluid from the master cylinder into the brake cylinder and a second rate of flow of the fluid into the master cylinder and that the flow-rate changing device changes the relationship according to an operating amount of the brake operating member as recited in claim 1. That is, the master cylinder 17 provided with the regulating device 18 and the assisting chamber 17c is not operable to change the relationship between the first rate of flow of the fluid from the pressurizing chamber 17a, 17 into the brake cylinder and the second rate of flow of the fluid into the master cylinder 17, such that the relationship is changed according to an operating amount of the brake pedal 15.

In other words, the normal operation according to the operating amount of the brake pedal 15 as taught by Oishi is performed such that the fluid pressure in the passage 27 connected to the assisting chamber 17c is regulated by the regulating valve 18, "to a pressure corresponding to the brake pedal depression force." See column 4, lines 11-19 of Oishi. In this arrangement of control of the pressure in the assisting chamber 17c, however, the

relationship between the rate of flow (equivalent to the first rate of flow as recited in claim 1) of the fluid from the master cylinder 17 into the brake cylinder 11-14 and the rate of flow (equivalent to the second rate of flow as recited in claim 1) of the pressurized fluid into the assisting chamber 17c (master cylinder 17) is not changed during an operation of the brake pedal 15 (according to an operating amount of the brake operating member).

The flow-rate changing device changes the relationship between the first and second rates of flow of the fluid according to an operating amount of the brake operating member, as recited in claim 1. In one embodiment demonstrated in Figs. 1-10 of the present application, for example, the pressurized fluid generated by the pump 82 is delivered into the rear pressure chamber 30 of the master cylinder 10 (step S2 in Fig. 9) until the master cylinder pressure P_1 has increased to a threshold or switching value P_{1s} corresponding to the maximum delivery pressure P_{max} of the pump 82, i.e., until an affirmative decision (YES) is obtained in step S1 as shown in Fig. 9. After the master cylinder pressure has increased to the switching value, i.e., after the operating force F_p of the brake pedal 24 has increased to a switching point corresponding to the switching pressure P_{1s} , the pressurizing fluid is delivered from the pump 82 into the pressurizing chamber 18 of the master cylinder (step S5), so that the first rate of flow of the pressurized fluid from the pressurizing chamber 26, 28 of the master cylinder into the brake cylinder is lowered from a relatively high value $(A_{m1}/A_{m3})q$ to a relatively low value q , as clearly shown in Figs. 4 and 10. Thus, the flow-rate changing device 10, 88, 90, 92, 150 is operable to change the relationship of the first rate of flow with respect to the second rate of flow according to the operating amount of the brake operating member. This feature is clearly not taught or suggested by Oishi.

In contrast, Oishi teaches that the master cylinder 17 is not operable, even in the normal braking operation, to change the relationship between the rate of flow of the fluid from the master cylinder 17 into the brake cylinder 11-14 and the rate of flow of the fluid into

the master cylinder 17 (into the assisting chamber 17c), according to the operating amount of the brake operating member 15. In other words, Oishi fails to teach or suggest that flow-rate changing device changes the relationship according to an operating amount of the brake operating member as recited in claim 1 in the normal braking operation.

For the foregoing reasons, Applicant submits that claims 1, 10, 11, 15, 16 and 30 are patentable over Oishi. Reconsideration and withdrawal of the rejection are thus respectfully requested.

III. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claim 1-17 and 30 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

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